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served stars and all from the North to the South pole of the heavens that are visible to the naked eye. This work has already resulted in interesting conclusions in reference to star-streams, the solar motion in space, and other stellar problems.

The preliminary expedition to establish the new observing station sailed from Brooklyn for Buenos Aires, August 20, on the steamship Velasquez. Accompanying Professor Boss, is Professor Richard H. Tucker, of the Lick Observatory, well known for his work in observation with the Meridian Circle of the Lick Observatory. He will superintend the construction of piers and buildings for the new observatory, and he will be placed in charge of the observations after the station shall be ready for operation. Mr. Varnum, for many years an assistant at the Dudley Observatory, is also a member of the party. Later on the remainder of the staff, which in all will consist of eight persons, will be sent to the new observatory when it shall be ready for work.

This undertaking has met with cordial recognition from Mr. Epifanio Protela, Argentine minister to the United States, and from other representatives of the Argentine Government, which in the most liberal and enlightened spirit has extended every assistance and courtesy.

#### SCIENTIFIC NOTES AND NEWS

PROFESSOR C. O. WHITMAN, head of the Department of Zoology in the University of Chicago, has resigned the directorship of the Marine Biological Laboratory, Wood's Hole, Mass., which he has held for the past twenty years. Professor Frank R. Lillie, of the University of Chicago, the assistant director, has been elected to the directorship.

At the meeting of the French Association for the Advancement of Science at Clermont Ferrand, the gold medal of the association was presented to Sir William Ramsay.

In connection with the Sheffield meeting of the British Medical Association, the faculty

of science of the University of Sheffield has conferred honorary degrees as follows: President-elect, Professor Simeon Snell; Dr. Henry Davy, of Exeter, the outgoing president; Professor Bouchard, of the University of Paris; Professor John Chiene, professor of surgery at Edinburgh; Dr. Kingston Fowler, dean of the medical faculty of the University of London; Professor Fuchs, the Viennese ophthalmologist; Professor Lucas-Championnière; Dr. C. J. Martin, director of the Lister Institute; Professor John Murphy, of Chicago; Dr. Thomas Oliver, known for his work on dangerous trades; Mr. Edmund Owen; Sir Henry Swanzy, of Dublin; Professor Tillmanns, of Leipzig; and Dr. Dawson Williams, editor of *The British Medical Journal*.

*The Journal of the American Medical Association* states that a banquet in honor of the seventieth birthday anniversary of Gen. George M. Sternberg was given on June 8, when nearly 200 men celebrated in the annals of government, science and literature met to honor the former surgeon-general. The Hon. John W. Foster, formerly secretary of state, presided as toastmaster. A silver loving cup was presented to General Sternberg by those who attended the banquet, and a large American flag was given him by the attachés and patients of the Sternberg Sanitarium in Maryland.

M. GAILLOT has been elected a corresponding member of the Paris Academy of Sciences in the section of astronomy, in the room of M. Trepied.

THE president of the Republic of France has conferred upon Professor Wm. B. Alwood, of Charlottesville, Va., the Cross of Officier du Mèrite Agricole, and the Société Nationale d'Agriculture de France, has awarded him the silver medal and diploma of the society.

DR. JAMES A. NELSON, formerly honorary fellow in entomology and invertebrate zoology at Cornell University, has accepted an appointment with the Bureau of Entomology at Washington, D. C. Dr. Nelson who is a graduate of Kenyon College and received his

Ph.D. at the University of Pennsylvania, will be occupied with certain problems in insect embryology.

DR. GUSTAV MELANDER succeeds Dr. Ernst Biese as director of the Finnish Central Meteorological Station.

DR. F. RISTENPART, of Berlin, has been appointed director of the Observatory of Santiago de Chile, as successor to Dr. A. Obrecht.

WE learn from *The Auk* that Mr. Robert Ridgway has returned from his trip to Costa Rica. Although his visit was not as prolonged as originally intended, Mr. Ridgway succeeded, with the cooperation of his friends, in collecting over 900 birds, besides other material. His collecting stations were chiefly Escasú, at the base of the Cerro de la Candelaria; Guayabo, at the eastern base of the Volcan Turrialba; also at an altitude of over 9,000 feet on the volcano itself; and at Bonilla, east of Guayabo.

THE assistants of Professor Novarro, of Genoa, have decided to endow a prize to be called by his name and awarded for work in general pathology. Professor Novarro's election to the Italian senate was the occasion of the movement.

AT the recent meeting of the British Medical Association the Stewart prize was awarded to Colonel Sir David Bruce, F.R.S., for his researches as to the origin and prevention of Mediterranean fever and the Middlemore prize to Professor Simeon Snell for his contributions to the science of ophthalmology.

THE death is announced of Edward Augustus Samuels, the author of an "Ornithology and Zoology of New England."

SIR THOMAS STEVENSON, senior scientific analyst to the home office of the British government, died on August 7, at the age of seventy years.

PRINCE YAMASHIMA, who made valuable contributions to Japanese meteorology and seismology, has died at the age of thirty-one years.

THE deaths are also announced of Professor J. V. Barbosa du Bocage, director of the Zoological Institute, at Lisbon, at the age of

eighty-four years; of Dr. Hermann Karst, the botanist, at Berlin, at the age of ninety-two years, and of Professor Daguillon, assistant professor of botany at the Sorbonne.

THE New York Academy of Medicine announces that the sum of \$1,000 will be awarded to the best essay in competition on "The Etiology, Pathology and Treatment of the Diseases of the Kidney." Essays must be presented on or before October 1, 1909.

By the will of Mrs. A. L. R. Waldo-Sibthorp, bequests are made to the Royal Hospital for Incurables and the Charing Cross Hospital, respectively, of £20,000 and £10,000, and the residue of the estate, estimated at some £75,000, is bequeathed to the West End Hospital for Diseases of the Nervous System.

ACCORDING to the *Journal of the American Medical Association*, the Swedish Medical Association is to celebrate its centennial next October, at Stockholm. A special committee is making great efforts to have a notable collection of historical medical portraits, medals, printed and manuscript works and an antique apothecary shop as features of the celebration. The committee includes some of the editors of *Hygiea*, the official organ of the Swedish Medical Association, which issues an appeal for all to bring forth their historical relics, etc.

THE meeting of Imperial and Colonial Meteorologists has been postponed until next year at the time of the British Association for the Advancement of Science meeting in Winnipeg. The postponement is due to the fact that many English meteorologists whom it is desirable should attend, wish to be present at the Winnipeg meeting and do not care to visit Canada this year.

WE learn from *The Observatory* that the commonwealth government of Australasia has taken over the meteorological services of all the Australian States.

THE same journal states that efforts are being made to establish a solar observatory in Australia, and in particular at Adelaide. The Melbourne, Sydney and Perth Observatories are busy with the Astrographic Catalogue, so

that three of the Australian colonies are scarcely in a position to undertake this new work; but South Australia is freer, and if it can establish a solar observatory, either at Adelaide or elsewhere, a gap in longitude will be satisfactorily filled. The scheme is receiving substantial private support. In addition to the promise of a telescope (a 6-in. Grubb equatorial refractor) from the trustees of the estate of the late Lord Farnham, Dr. W. Geoffrey Duffield, of the Physical Laboratories, Manchester University, has received from Mr. Frank K. McClean the offer of £500 towards the purchase of a large spectroheliograph, on condition that an additional sum of £1000 be privately subscribed towards the same piece of apparatus.

#### UNIVERSITY AND EDUCATIONAL NEWS

THE University of Toronto is conducting a course in hygiene of twenty lectures. Dean Reeve of the medical faculty will take up the eye and ear; Dr. George R. McDonagh, the nose and throat; Dr. Charles Sheard, contagious and infectious diseases; Dr. Abbott, color blindness, and Dr. William Oldright, general sanitation.

DR. CHAS. C. ADAMS, of the University of Chicago, has been appointed associate in animal ecology at the University of Illinois.

IN the faculty of engineering at University College, London, a new lectureship in electrical design has been instituted, to which Mr. Henry Metcalf Hobart has been appointed.

MR. W. JACKSON POPE, F.R.S., professor of chemistry in the University of Manchester, has been elected into the professorship of chemistry, at Cambridge, rendered vacant by the resignation of Professor G. D. Liveing, who has held the chair since 1861. Mr. Pope, who was born in London in 1870, was educated at Finsbury Technical College and the Central Technical College, London. Before going to Manchester he was head of the chemistry department of the Goldsmiths' Institute, London.

DR. HANS SPEMAN, of the University of Würzburg, has been appointed professor of zoology at the University of Rostock.

#### DISCUSSION AND CORRESPONDENCE

##### THE CHEMICAL FORMULA OF THE MINERAL BENITOITE

IN a recent issue of SCIENCE (May 1, 1908) Mr. Edward H. Kraus discusses the recently described mineral benitoite, and suggests a formula which differs somewhat from the one proposed by Professor Louderback in his original paper. The two analyses already reported, and a third which will be published shortly, all show that the empirical formula of the mineral is  $\text{BaTiSi}_2\text{O}_6$ , and the most reasonable assumption is that it is made up of the three oxides  $\text{BaO}$ ,  $\text{TiO}_2$ , and  $\text{SiO}_2$ . Mr. Louderback's proposal is that the mineral is a very acid titano-silicate of barium, whereas Mr. Kraus suggests that the titanium here plays the part of a base and that therefore the mineral is a double metasilicate of barium and titanium. Though it must be admitted that absolute proof of the correctness of either of these two suggestions is at present scarcely possible it seems to me that the arguments advanced by Mr. Kraus are entirely unsatisfactory and I submit the following objections.

The main argument upon which Mr. Kraus bases his formula is the alleged isomorphism of benitoite with beryl, which mineral is usually regarded as a salt of metasilicic acid. If the most favorable values are chosen the ratios of the  $a$  axis to the  $c$  axis for the two minerals are 1.4989 and 1.4230, respectively. These figures show an actual difference of more than sixteen per cent. of the magnitude concerned, and even interpreting the law of isomorphism with that degree of looseness which is not uncommon among mineralogists, furnish no evidence upon which to base conclusions as to the molecular structure of the two compounds. The two minerals also differ widely as to form and habit; one is trigonal and the other holohedral. Further, many of the illustrations which Mr. Kraus cites as examples of isomorphism are open to serious question; galena and argentite most certainly can not be called isomorphous merely because they both crystallize in cubes.

The occurrence of benitoite in rock formations which are of a basic character, upon